DOCUMENT RESUME

ED 440 330 CG 029 871

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TITLE Educational Applications of Wellness Techniques: An Experimental Investigation of the Effects of Labyrinth Walking.
PUB DATE 2000-00-00
NOTE 20p.
PUB TYPE Information Analyses (070) -- Reports - Research (143)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Health Activities; *Health Promotion; *Meditation; *Spirituality; Stress Management; *Walking
IDENTIFIERS Healing; *Labyrinths; Relaxation

ABSTRACT

The focus of this paper is to expand the evidence in support of the use of labyrinths as effective wellness tools. Interest in labyrinths and other ancient religious practices has increased as interest in spirituality has risen. This is in conjunction with better understanding of the mind/body relationship and the impact of stress on the immune system. This study, which incorporates use of a control condition for comparative purposes, is an extension of previous research that supported the use of labyrinth walking as a means of enhancing wellness. The present study, conducted at a liberal arts college in Pennsylvania, assesses whether walking an eleven-circuit labyrinth can be truly beneficial to the wellness of individuals, and also if focused non-labyrinth walking has similar or different effects on individuals' wellness. Results of the study failed to find a significant difference between groups on the overall measure of wellness, raising questions about the specific efficacy of labyrinth walking. Both types of directed walking were associated with significant improvement of the overall wellness index. A brief history of labyrinths and their therapeutic and educational uses is included. (Contains 22 references.) (GCP)

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Educational Applications of Wellness Techniques: An Experimental Investigation of the Effects of Labyrinth Walking

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2000

Abstract

Labyrinths have been in existence for over four thousand years. Their uses have changed over time, and labyrinth designs have varied as well. Today, labyrinths are being used as relaxation and meditation techniques, and as tools in the quest for spirituality. Barilotti (1999) conducted a pilot study involving construction of an eleven-circuit labyrinth and observation of the effects of walking this labyrinth on volunteer subjects. Results of this pilot study showed that the vast majority (97%) of the walkers stated that they would like to walk to labyrinth again. When pre- to post effects of walking the labyrinth were analyzed, significant positive changes ($p<.05$) on

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all twelve wellness variables examined were obtained (Barilotti, 1999).

Although no control group was utilized in Barilotti's pilot study, her strong, positive results suggest that walking an eleven-circuit labyrinth can enhance wellness for a variety of subjects. It also demonstrated the openness that subjects had to using this wellness/spiritual tool.

The present investigation extended her study, in order to examine whether the effects she observed were due primarily to the labyrinth walk itself or to nonspecific factors associated with focused walking in general. The present research replicated Barilotti's study and included use of a control group, to assess the effects of nonspecific treatment factors.

Introduction

As we begin the new millennium, more and more Americans are seeking an enhanced sense of their own "spirituality". This has rekindled interest in ancient religious traditions, including use of labyrinths as a means of facilitating reflection and meditation. In conjunction with this, increased appreciation of the relationship between mind and body, and the impact of stress on immune system functioning, has contributed to students' growing interest in techniques to increase wellness. As a result, many schools have recently adopted use of labyrinth walking as a means of fostering wellness and spiritual growth.

A recent study revealed that 42% of Americans used

alternative forms of medicine in 1997, up from 34% in 1990 (Armour, 1999). In 1993, the New England Journal of Medicine reported that 425 million visits were made to providers of unconventional therapy, as opposed to 388 million visits to primary care physicians. Consumers are seeking these forms of treatment and health care providers are beginning to recognize the role that spirituality may play in the healing process.

Recently, spirituality has begun to be seen by many as a valid aspect of total health and wellness, (Seward, 1999). Spiritual healing is considered to be so important that the World Health Organization recently stated, "the existing definition of health should include the spiritual aspect and health care should be in the hands of those who are fully aware of and sympathetic to the spiritual dimension" (Seward, 1999). This concept is spreading, as evidenced by the increased number of medical plans and health insurance companies now covering some forms of alternative therapies.

The medical profession does not dismiss the importance of the mind-body connection. Physicians are beginning to realize that spirituality may be integral to the healing process. In 1996, a survey conducted by the American Academy of Family physicians revealed that "99% of the respondents, n=296, were convinced religious beliefs could heal, while 75% believed others' prayers could heal" (Barilotti, 1998).

Complimenting this idea is the work of Norman Shealy, M.D., a former neurosurgeon and the founder of the American Holistic

Medical Association. Dr. Shealy discovered and developed ways of applying more non-invasive techniques for relieving pain. These included the use of stress-reduction techniques, exercise, proper nutrition, and meditation; common forms of holistic practices that any conventional physician can prescribe.

Physical activity is one non-invasive technique for stress and pain relief. In recent years, physical activity has been valued as being able to promote sound mental health. In 1997, it was estimated that in the United States approximately 7.3% of the adult population had an anxiety disorder that required some form of treatment. The current interest in preventing stress-related disorders has heightened interest in exercise as an alternate to traditional therapies such as psychotherapy or drug intervention

Physiological studies have shown the positive effects of meditation, including lowered blood pressure and decreased anxiety (Pert, 1997). Most people experience meditation as a calming, peaceful experience that offers them many benefits. Joan Borysenko defines meditation as "any activity that keeps the attention pleasantly anchored in the present moment (Altenberg, 1992).

Labyrinths allegedly help to foster the balance between the mind and body, and establish harmony between the psychological and physical self. Dr. Lauren Artress states that the labyrinth "is a simple tool that centers the mind and is conducive to spiritual awakening" (Artress, 1995). Labyrinths are currently being used to increase spiritual awareness, aid in meditation,

decrease stress, and aid self-awareness. Walking a labyrinth seems to be connected with spiritual and therefore possibly physical health.

Labyrinths have been in existence for approximately four thousand years. Various labyrinth designs that include seven-circuit, eleven-circuit, Maltese, and Circular patterns have been found in various cultures and religions. In modern times, labyrinths are being used for walking meditation, stress management, emotional time outs, and for spiritual wellness or development. Use of the labyrinth might be useful for individuals of many ages, religions, and cultures. Teachers have recently used labyrinth walking as a form of calming therapy for hyperactive children, and other professionals used such walking to aid Alzheimer patients. Religious groups utilize labyrinths as spiritual tools, and medical personnel are using them for various types of adjunct therapy.

Much of the resurgence of interest in the labyrinth can be attributed to the 1991 installment of the Chartes labyrinth design in Grace Cathedral in San Francisco, and the public relations efforts of Reverend Lauren Artress. Its use as a spiritual tool and as a symbol of religiousness has sparked a heightened interest and curiosity about its implications and its significance.

Labyrinths are unicursal in design, meaning there is only one path and it leads to a center, the final destination. Labyrinths can be found in almost every religion around the

world. Labyrinths are not to be confused with mazes. Where labyrinths are unicursal, mazes are multicursal. Labyrinths contain no tricks, dead ends, cul-de-sacs, or intersecting paths. Mazes, in contrast, offer a choice of paths leading to the center; one's logic is challenged. There are also various patterns and styles of labyrinths found in different cultures. In modern times, the most well known style of the labyrinth is the eleven-circuit labyrinth, and the most well known eleven-circuit labyrinth is found at the Chartes Cathedral in France. Labyrinths can be made from a variety of materials. Labyrinths are commonly made of canvas, tile, brick, or woven fabric, but can also be found on turf or grassy areas, on coins, and in ancient pottery.

In Dr. Lauren Artress' book, Walking a Sacred Path, she describes the labyrinth as a powerful tool used to enhance our spiritual awareness (1995). "The labyrinth helps us rediscover the depths of our souls. We are not human beings on a sacred path, rather we are spiritual beings on a human path" (Artress, 1995). Hossler's book, Gifts of the Labyrinth (1996), also makes the symbolic connection between the path of life and the labyrinth. She describes the labyrinth as a metaphor for life; although her life at times feels as if it consists of endless detours and ends, she is, "in reality walking one path through life…The twists and turns of the labyrinth mirror those that my life seems to take (Hossler, 1996). Hossler embraces the labyrinth as a symbol of her life and incorporates the power and

energy of the labyrinth into her life. Labyrinths are often viewed as sacred spaces. A sacred space is a place where one can obtain assistance in contacting the non-physical realms. Sacred geometry is utilized in the construction of these places. Sacred geometry is based on the ratio called "pi". Pi is deemed an irrational number because it continues infinitely, never repeating; it has no pattern. Irrational numbers are also known as "transcendental numbers". They cannot be known in their entirety, and they do not exist in the physical world (Lonegren, 1996).

Both eleven and seven circuit labyrinths are in current use as wellness tools. Jeanne Rachel Shaman, a Bryn Mawr College student who implemented the installation of a classical seven circuit labyrinth at her college, noted that eleven-circuit labyrinths were devised during the early Gothic era, when Christian Catholic beliefs were very restricted. Her belief is that "the eleven-circuit labyrinth at Chartes Cathedral is too restricting, the path is too long. The quadrants apply more to people who are left (analytically) brained." She also compared the eleven-circuit to a maze, linked with an element of "cunning-ness" to find the center goal. She highly favors the seven-circuit labyrinth, due to its openness and simplicity. "The seven-circuit labyrinth is more flowing and open, it is more closely related to our biological make-up."

Ann Hossler, a resident of Lancaster, PA, also spoke highly of the seven-circuit labyrinth; in fact, she has one constructed

in her backyard. She is a frequent walker of both eleven and seven-circuit labyrinths, and has walked numerous models of labyrinths throughout various countries. Hossler tends to utilize the seven-circuit much more frequently for her personal meditation and problem solving time. According to Hossler, the seven-circuit has apparent beauty and simplicity. She was inspired to construct her own square seven-circuit labyrinth, a Celtic version. Also according to Hossler, many if not a majority of the personal insights and other benefits she has gained by walking various labyrinths have been acquired through her experiences with seven-circuit labyrinths.

Mary Van House, who works with St. Peters Episcopalian Church in Lewes Delaware, also uses the seven-circuit more often than the eleven-circuit. She often draws the seven-circuit in the sand on the beach and at other locations. She finds the canvas eleven-circuit labyrinth she helped build for her church very hard to transport and impossible for one person to manage, while she can draw and use the seven-circuit labyrinth whenever and wherever she is. However, in contrast to the previous two women, Van House finds that sometimes the seven-circuit labyrinth does not provide as "deep an experience as the eleven-circuit due to its shorter path". To compensate for this perceived problem, she often walks the seven-circuit labyrinth more than once during each session. Van House also described the eleven-circuit as being more "formal". Although she does not necessarily agree, she has heard some express their feelings that the eleven-circuit

labyrinth is seen as generating more "inward", personal experiences, while the seven-circuit appears to be more of an "outward reaching", community based experience. Van House chose the eleven-circuit labyrinth for the Lewes church primarily because that was the design being touted at the time of her introduction to labyrinths. She related that she thinks the eleven-circuit labyrinth is often thought of as a "church" or "religious" type of labyrinth, while the seven-circuit is more of the commoners' or laypersons' labyrinth. However, she knows of many churches that are now beginning to see the advantages of using the classical design; many churches are now using seven-circuit labyrinths with positive spiritual results.

In walking the labyrinth, many approaches are equally valid. The labyrinth is a personal experience and people respond to it differently. For first time walkers, the labyrinth may cause mild anxiety at first, or one may experience fear about what their experience may entail (Hossler, 1996). There are many approaches to the walk. Some may have a slow pace, some a fast pace. Some choose to skip or crawl on their hands and knees so that their journey feels more symbolic resembling a pilgrimage that they may take on extraordinary value for some people" (www.gracecathedral.org). It is also important to be aware of the effects that expectations about the labyrinth can have on one's experience.

An increasing number of schools are also beginning to introduce and utilize labyrinths to their students. Younger

children's use of labyrinths on playgrounds can be a tool for games or calming hyperactivity (Ferre, 1996). Older students benefit from the labyrinth by addressing and studying its history, geometric design, and symbolism. The Chartes design especially is an educational venture. The pattern can be used to introduce topics such as the Middle Ages, pilgrimages, and Christianity. Labyrinths also stimulate interest in other areas of study, such as philosophy, music, language, as well as Greek mythology, astronomy, and architecture.

While anecdotal reports tout the benefits of labyrinths, the labyrinth experience is a difficult phenomenon to validate with scientific evidence, primarily because we have great difficulty measuring what lies within our minds. To date there is primarily only anecdotal evidence to support labyrinth use for wellness enhancement.

Present Investigation

The focus of the current investigation is on expanding the evidence in support of the use of labyrinths as effective wellness tools. By systematically collecting and analyzing data obtained from labyrinth walkers and a non-labyrinth walking control group, the effects of labyrinth walking will be assessed. In the study by Barilotti (1999), results supported use of labyrinth walking as a means of enhancing wellness. She found significant a positive effects of labyrinth use on subjects. However, no control group was utilized, thus it is difficult to discern whether the changes observed were created primarily by

the use of the labyrinth, or involved other factors. Few studies have examined the effects of the labyrinth in a systematic and empirical manner. The current study is an extension of Barilotti's work, incorporating use of a control condition for comparative purposes. The present study assessed whether walking an eleven-circuit labyrinth can be truly beneficial to the wellness of individuals, and also if focused non-labyrinth walking has similar or different effects on individuals' wellness. Changes in 12 selected "wellness" variables were monitored.

Methods

Participants

Participants were 94 undergraduate (32 males, 62 females) students enrolled in a small liberal arts college located northwest of Philadelphia, Pennsylvania. The majority of subjects who participated in the study were volunteers from various classes offered by the College's Exercise and Sport Science Department. Most of the students were non-health related or exercise science majors. These students were brought to the labyrinth during class time. Additional subjects were recruited through advertising labyrinth walks in campus communications. These subjects could walk the labyrinth at any time it was open. The only criterion for inclusion was that participants were 18 years old or older and could complete the survey.

Dependent Measures

A survey developed by Barilotti (1999) to assess the

effectiveness of using the labyrinth as a wellness tool was utilized. The questionnaire included nine yes/no questions concerning the subject's demographics. One multiple choice and two open ended questions were given to assess the subject's reasons for walking the labyrinth or focus walking. Two objective and four yes/no questions pertained to the subject's feelings prior to and after walking. The control group questionnaire was a modification of the original questionnaire: where the original asked a question about labyrinth walking, e.g. "have you ever walked a labyrinth before", questions were adapted to ask about focused walking, e.g., "have you ever focus walked before".

Procedure

. All walkers were instructed to use the time to quiet the mind, relax, manage stress, identify thoughts, and/or address concerns. In both conditions, labyrinth and focus walking, subjects were given the first part of the questionnaire prior to walking. The researcher assigned approximately equal numbers of males and females to the two experimental conditions. Questionnaires included an identification number written at the top, which could be used later to match the pre and post surveys. All subjects were then given an information sheet concerning the general benefits of walking or about walking the labyrinths, including tips on etiquette while walking the labyrinth and using it as a wellness tool. Subjects were given time to look over the tip sheet prior to walking.

Labyrinth Condition

Due to the large size of the eleven-circuit labyrinth used, 36 feet in diameter, there were few places where the present study could be undertaken. The labyrinth was made available for walking in two sites at varied times. Helfferich Hall, (Gyms I and II) was the first site, and the college's wrestling room was the second site. Subjects in the labyrinth group were instructed to remove their shoes. Subjects were then instructed to walk at their own pace to the center of the labyrinth, to spend as much time in the center as they desired, and then to follow the path back out. No more than five subjects were allowed to walk the path at once, and each person gave the person ahead of them an ample amount of time to start the path so they would not be too confined or close to one another. This procedure also provided space so participants could pass if so desired.

Focus Walking Condition

Focused walking: Subjects were told to walk at their own pace in a specified area (approximately one half of a basketball court), for a specified period of time approximately 10 minutes). After administration of the pretest measure, the control subjects were instructed to go to the gymnasium basketball court and walk the parameter of the court, following a rectangular pattern. Subjects were instructed to walk for at least ten minutes, but were informed they were allowed more time if they so desired.

At the conclusion of walking, both groups of subjects were given the second half of the questionnaire. Questionnaires were

completed in privacy. In both conditions, the same soft classical music was playing in the background throughout the walking experience.

Results

A pretest summary score was calculated for each subject by totaling the directionally adjusted pretest items. Similarly, a posttest summary score was obtained for each participant by adding those directionally adjusted items.

Between group t-tests were performed on the pretest summary measure. No significant differences were found between members of the labyrinth group and the control group. Between group t-tests on the posttest summary measure, revealed that members of the labyrinth group were not found to score significantly higher than members of the control group. However, between group t-test on individual posttest items revealed a trend indicating that labyrinth group members reported feeling more "balanced" than control group members after their walking experience.

Comparison of Post Test Ratings of Feeling Balanced

	Mean	Standard Deviation	n
Labyrinth	3.64	0.81	53
Control	3.27	1.18	41

($t = 1.81$, $df = 92$, $p = .07$).

Within subject t-tests were conducted separately for the labyrinth group and for the control group to assess change from

pre- to posttest. Participants in the labyrinth group scored significantly higher on the posttest summary scale than the pretest measure, (pre- X= 3.49, S.D.= 1.01, n= 51 versus post- X=4.45, S.D.= 0.67, t= 6.86, df= 50, p<.00). A significant change was also found among those in the control group, (pre- X= 3.72, S.D.= 1.05, n= 37, versus post- X= 4.32, S.D.= 0.85, t= 4.04, df= 36, p<.00).

Discussion and Conclusion

The failure to find a significant difference between groups on the overall measure of wellness raises questions about the specific efficacy of labyrinth walking. Both types of directed walking were associated with significant improvement of the overall wellness index. This suggests that previously reported benefits associated with labyrinth walking may be attributable to nonspecific factors also operating here in the focused walking condition. If future studies replicate the current findings, this would challenge the need to employ labyrinth designs when using directed walking exercises. Less labor-intensive means of using focused walking may enhance wellness as effectively as labyrinth walking. On the other hand, the finding that labyrinth walking was associated with somewhat greater reporting of feeling "balanced" deserves further exploration.

The study was limited by several factors. Participants were predominantly drawn from a restricted age group, limiting the extent to which findings can be generalized to a larger population. In addition, there were a limited number of places

that the labyrinth could be laid out and utilized, due to its large size. As a result, the control group may have walked in a more distracting environment than the labyrinth group. Another confound that may have affected results of the study is that only the labyrinth group was instructed to remove their shoes, as to not damage the canvas. Those who focus walked were not instructed to remove their shoes. Large group size may possibly have led to increased self-consciousness among participants. Some participants may have felt embarrassed trying to meditate or focus while walking with others. Lastly, self-reported data provided by subjects may have been compromised by the pressure. Students may have rushed through their surveys, not providing adequate information

The real advantage of using the labyrinth may lie less in its specific therapeutic effects and more in its ability to motivate people to engage in directed walking. The visual appeal of the labyrinth engages interest and encourages people to volunteer for this type of meditative experience. In the present study, students participated during normally scheduled class time. This neutralized the importance of the potential motivational differences between the labyrinth and focused walking conditions. Future examination of the differential attractiveness of labyrinth walking versus non-labyrinth walking, and its effect on voluntary participants, would be valuable.

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